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The Sphingidae (Moths) of Kartabo, British Guiana, and Caripito, Venezuela¹

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[This contribution is the result of various expeditions of the Department of Tropical Research of the New York Zoological Society to British Guiana and to Venezuela, all under the direction of Dr. William Beebe. The Guiana expeditions were made during the years 1917, 1919, 1920, 1921 and 1924. The expeditions were arranged so that each month of the year is represented in the collections. The Venezuelan expedition, in 1942, during which field work was carried on from February 19 to September 2 was sponsored by grants from the Committee for Inter-American Artistic and Intellectual Relations and from four trustees of the Zoological Society, George C. Clark, Childs Frick, Laurance S. Rockefeller and Herbert L. Satterlee, and by invaluable assistance from the Standard Oil Companies of New Jersey and Venezuela.]

INTRODUCTION.

This is the first of a series of papers on the Lepidoptera collected at Kartabo, British Guiana, and Caripito, State of Monagas, Venezuela, by expeditions of the Department of Tropical Research of the New York Zoological Society.

A list of the species of any group of organisms from a definite but little-known locality has a certain value. This value is increased by any comparison or correlation with other places, or with corresponding lists of even distantly related classes or phyla. In this instance, the comparison is between the Sphingidae collected at two former stations of the Department of Tropical Research, Kartabo and Caripito, supplemented by reference to the Sphingidae collected by the Rev. Dr. A. M. Moss at Pará, Brazil.

The sphinx moth faunas treated in this paper are all confined to exceedingly limited areas. In Kartabo, British Guiana, the senior author and his staff worked for portions of eight years in a quarter square mile of jungle; in Caripito, Venezuela, our sphinx collecting was confined to an area of about one square mile during 28 weeks in 1942.

Dr. Moss, throughout a period of eight years, collected sphinx moths in and around the city of Belem or Pará, Brazil.

The geographical situations of these three places are well known, and it is sufficient to recall that they are separated from each other by two great rivers, the Orinoco and Amazon, as well as an over-all distance of about 1,300 miles; the distances from Caripito to Kartabo, and from Kartabo to Pará, being respectively one-third and two-thirds the total distance.

The total number of Sphingidae taken by Dr. Moss at Pará during his stay was 90 species. In Kartabo during the same length of time we took 53 and, curiously enough, an identical number throughout our seven months at Caripito. At the two localities we captured a total of 73 species. One hundred and twenty-six species of sphinx in the Clark collection at the Carnegie Museum are from the Guianas and eastern Venezuela and an additional 12 species are ascribed to this region by the literature.

It is interesting to compare these neotropical lists with the records of 38 species plus 15 subspecies of sphingids taken in Canada, 46 in New York City and vicinity, and 83 species from the whole of Argentina.

The world-wide law that in the tropics the preponderance of animal life is represented by an abundance of species and rarity of individuals, and in northern latitudes by the antithesis of these relations is well illustrated by notes on the 90 sphingids found at Pará. Dr. Moss notes 65 species or more than 72 per cent. as uncommon to very rare, and 25 species as common or abundant.

One more statistic will serve to point another distinction between Pará and the two more northerly places; we captured 14 species which have not been recorded from Pará, and Moss secured 30 which we failed to find at either Kartabo or Caripito. As regards subfamilies, there is an interesting correlation: Acherontiinae is represented by 16 Pará species, and 17 in our collections,

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in Ambulicinae the ratio is 6 to 7, in Philampelinae 9 to 7, and Choerocampinae 12 to 13. In these four subfamilies there is thus little distinction, but in the remaining fifth subfamily, Sesiinae, the balance is decidedly disturbed, the species count being 47 in Pará and 29 in Kartabo and Caripito. This unequal proportion is still very noticeable in the Sesiinae of Kartabo and of Caripito, the numbers being respectively 27 and 16. In this respect we have the species of this one subfamily amounting, in both Pará and Kartabo, to more than fifty per cent. of the entire count of sphingid forms.

We have sought in vain to interpret this in terms of definite factors. The principal similarity between Pará and Kartabo is their situation in the heart of a climax tropical rain forest without radical division into wet and dry seasons, whereas Caripito is close to the open llanos and exhibits very great extremes of both wetness and dryness. Whether this, directly or indirectly, contributes to the excessive disproportion of number of species of the subfamily Sesiinae can be solved only by continued, intensive investigation and observation.

The warmest thanks of the authors go to Mr. Walter R. Sweadner, Curator of the Department of Entomology of the Carnegie Museum, who identified the Venezuelan Sphingidae and listed the species in the Clark Collection captured in the Guianas and eastern Venezuela. The late Dr. William Schaus identified many of the British Guiana specimens and the junior author the remainder.

Sphingidae.

ACHERONTIINAE.

Herse cingulata (Fabricius).

Kartabo, common; Caripito, occasional.

Fourteen specimens were taken at Kartabo on the following dates: May 13 (2 specimens), May 15 (5), May 18, May 25, June 2, August 6, September 10, October 4 and one dateless specimen. Five specimens taken at Caripito as follows: May 19, June 3, June 14, June 17 and August 24. This species is found throughout the tropics and sub-tropics of North and South America and has even been reported as a straggler in Canada.

Cocytius antaeus medor (Cramer).

Kartabo, unique; Caripito, unique.

One specimen from Kartabo captured on November 29 and one from Caripito taken on April 8. This subspecies is distributed from Florida to south Brazil.

Cocytius beelzebuth (Boisduval).

Kartabo, not collected; Caripito, unique.

This species was reported from Caripito by Rene Lichy (*Boletín de la Sociedad Vene-*

zolana de Ciencias Naturales, Tomo VIII, No. 55, p. 225, Caracas, 1943). It was collected in July. Distributed from Nicaragua to south Brazil.

Cocytius cluentius (Cramer).

Kartabo, occasional; Caripito, unique.

Four specimens taken at Kartabo: June 6, July 12, August 8 and August 9. Six specimens taken at Caripito: May 13, May 17 (2), May 19, June 2 and July 24. Distributed from Mexico to southern Brazil and the West Indies.

Cocytius duponchel (Poey).

Kartabo, unique; Caripito, occasional.

One specimen was taken at Kartabo in May and three at Caripito as follows: May 16, June 14 and June 17. This species is widely distributed in the neotropics.

Cocytius lucifer Rothschild & Jordan.

Kartabo, not collected; Caripito, unique.

This species was reported from Caripito by P. Anduze (*Boletín de la Sociedad Venezolana de Ciencias Naturales*, Tomo IV, No. 32, p. 305, Caracas, 1938). It was collected in July. Widely distributed in the neotropics.

Amphimoea walkeri (Boisduval).

Kartabo, occasional; Caripito, common.

Four specimens taken at Kartabo as follows: May 22, May 30, August 15 and August 21. Eight specimens taken at Caripito as follows: April 9, May 13, May 19, June 3, July 1 and July 2 (3). This species is distributed from Nicaragua to south Brazil but has not been recorded from the West Indies.

Protoparce albiplaga (Walker).

Kartabo, not collected; Caripito, common.

Nine specimens taken at Caripito on the following dates: May 12, May 17, May 19 (2), June 10 (2), June 12, June 13 and June 16. Distributed from Mexico to southern Brazil but not in the West Indies.

Protoparce diffissa tropicalis

Rothschild & Jordan.

Kartabo, unique; Caripito, common.

One specimen from Kartabo with no date and thirteen taken at Caripito on the following dates: May 11 (2), May 16, May 19, May 25, June 2, June 5, June 10, June 17, July 9, July 12 and two specimens on July 16. This species is distributed from Colombia to Brazil.

Protoparce dilucida Edwards.

Kartabo, not collected; Caripito, unique.

One specimen taken at Caripito on May 12. This is an interesting record as it extends the range of the species to the north-eastern part of South America. Hitherto,

it has not been reported south of Honduras. This species has not been reported from Pará by Moss.

***Protoparce franciscæ* Clark.**

Kartabo, not collected; Caripito, abundant.

Twenty-seven specimens were taken at Caripito on the following dates: May 6, May 9, May 10 (3), May 11 (3), May 17 (6), May 19 (6), May 21 (2), May 22 (3), May 25 and May 27. This species was described from Venezuela and was not taken at Kartabo nor by Moss at Pará.

***Protoparce florestan* (Cramer).**

Kartabo, unique; Caripito, abundant.

One specimen taken in July at Kartabo, and 21 at Caripito as follows: March 11, May 7, May 12 (4), May 14 (3), May 17 (2), May 19 (2), May 21 (2), May 22 (2), May 23, May 26, June 1 and June 9. The range of this species is from southern Brazil to Mexico.

***Protoparce hannibal* (Cramer).**

Kartabo, unique; Caripito, not collected.

One specimen taken at Kartabo in 1920. The species is found from southern Brazil to Panama.

***Protoparce lichenea* (Burmeister).**

Kartabo, not collected; Caripito, occasional.

Four specimens captured at Caripito on the following dates: May 11, May 17 (2) and May 21. This species was not taken by Moss at Pará. It is distributed from northern Argentina to Mexico.

***Protoparce pellenia* (Herrich-Schäffer).**

Kartabo, not collected; Caripito, unique.

One specimen taken on May 17 at Caripito. Moss did not capture this species at Pará. Recorded in the literature from Colombia, Panama and Mexico.

***Protoparce rustica rustica* (Fabricius).**

Kartabo, common; Caripito, rare.

Seven specimens taken at Kartabo, and two at Caripito, one on June 2 and the other on July 9. Generally distributed in tropical and subtropical America.

***Protoparce sexta paphus* (Cramer).**

Kartabo, common; Caripito, unique.

Ten specimens taken at Kartabo, three of them in May and the remaining seven unlabelled. The single specimen from Caripito captured on June 23. This species is distributed from Costa Rica to Argentina.

AMBULICINAE.

***Protambulyx astygonus* (Boisduval).**

Kartabo, not collected; Caripito, occasional.

Three specimens taken at Caripito, one on each of the following dates: May 12, May 22 and July 3. Reported from Brazil. Moss failed to capture this species at Pará.

***Protambulyx euryalus* Rothschild & Jordan.**

Kartabo, unique; Caripito, not collected.

One specimen taken at Kartabo in January. This species was described from Peru and Venezuela. Not recorded by Moss.

***Protambulyx eurycles* (Herrich-Schäffer).**

Kartabo, not collected; Caripito, rare.

One specimen collected at Caripito on May 23 and another on June 3. Ranges from Colombia to south Brazil.

***Protambulyx goeldii* Rothschild & Jordan.**

Kartabo, not collected; Caripito, unique.

This species was reported from Caripito by P. Anduze (*Boletín de la Sociedad Venezolana de Ciencias Naturales*, Tomo IV, No. 32, p. 305, Caracas, 1938). It was collected in July. The species was described from Pará.

***Protambulyx strigilis* (Linnaeus).**

Kartabo, occasional; Caripito, abundant.

Six specimens collected at Kartabo on the following dates: May 19, June 8, June 10, November 10 and two with no date label. Twenty-two specimens taken at Caripito on the following dates: April 8, May 3, May 12 (2) May 14, May 15, May 16 (3), May 17, May 25 (2), June 10, June 13, June 15 (3), June 16, July 2, July 9, July 15 and July 16. Widely distributed in the American tropics.

***Amplipterus gannascus* (Stoll).**

Kartabo, not collected; Caripito, common.

Twelve specimens were collected at Caripito as follows: May 1, May 4, May 10, May 13, May 25, June 12, June 15, July 7, July 14 (2), August 2 and August 7. Distributed from Mexico to Argentina.

***Amplipterus palmeri* (Boisduval).**

Kartabo, not collected; Caripito, occasional.

Five specimens taken at Caripito as follows: May 21, May 22, May 24, July 15, and August 15. Widely distributed in South America.

SESIINAE.

***Pseudosphinx tetrio* (Linnaeus).**

Kartabo, occasional; Caripito, occasional.

Five specimens taken at Kartabo, but only two specimens have dates, the first July 14 and the other July 19. Three specimens taken at Caripito as follows: March 22, May 26 and June 13. Distributed from Mexico to Argentina.

***Isognathus caricae* (Linnaeus).**

Kartabo, occasional; Caripito, rare.

Five specimens taken at Kartabo as follows: April 10, June 16 (2), July 14, and August 5. The two specimens taken at Caripito were taken on June 8 and July 14. Distributed from Venezuela to south Brazil.

***Isognathus leachi* (Swainson).**

Kartabo, not collected; Caripito, rare.

Two specimens collected at Caripito, the first on May 22 and the second on July 16. Distributed from Surinam to south Brazil.

***Isognathus menechus* (Ménétriés).**

Kartabo, rare; Caripito, not collected.

Two specimens taken at Kartabo, one on August 7 and the other on August 19. Distributed from Surinam to south Brazil.

***Isognathus scyron* (Cramer).**

Kartabo, occasional; Caripito, occasional.

Four specimens taken at Kartabo as follows: May 10, May 24, May 29 and one with no date. The three specimens collected at Caripito captured as follows: May 16, May 22 and June 15. Distributed from Venezuela to Pará.

***Isognathus swainsoni* Felder.**

Kartabo, rare; Caripito, common.

Two specimens taken at Kartabo, both on April 19. Eight specimens taken at Caripito as follows: April 15, May 5, May 14, May 22 (2), May 24, June 15 and August 2. Distributed from Surinam to southern Brazil.

***Erinnyis alope* (Drury).**

Kartabo, occasional; Caripito, occasional.

Seven specimens taken at Kartabo as follows: March 14, May 19, June 10, June 16, June 22, September 11 and October 19. Seven specimens were taken at Caripito as follows: May 2, May 21, June 13, July 14 (3) and July 27. Found throughout tropical and subtropical America.

***Erinnyis crameri* (Schaus).**

Kartabo, rare; Caripito, common.

Two specimens taken at Kartabo, one on May 5 and the other on May 15. Twelve specimens taken at Caripito as follows: June 3, June 10 (4), June 13 (4), June 17 (2) and June 21. Found throughout tropical and subtropical America.

***Erinnyis ello* (Linnaeus).**

Kartabo, abundant; Caripito, abundant.

This species is the commonest sphingid in both Kartabo and Caripito. More than one hundred and fifty were taken at Kartabo and Caripito in May, June, July and August. This is a tropical and subtropical insect that wanders as far north as Canada.

***Erinnyis obscura obscura* (Fabricius).**

Kartabo, occasional; Caripito, occasional.

Three specimens captured at Kartabo on June 16 and four at Caripito, one on June 12 and the remaining three on June 13. A tropical and subtropical species that occasionally is found as far north as Canada.

***Erinnyis oenotrus* (Cramer).**

Kartabo, unique; Caripito, not collected.

One specimen collected at Kartabo on May 22. Distributed throughout the American tropics and subtropics.

***Grammodia caicus* (Cramer).**

Kartabo, unique; Caripito, unique.

One specimen taken at Kartabo on September 29 and one at Caripito on May 5. Distributed from Florida to Argentina.

***Pachylia ficus* (Linnaeus).**

Kartabo, occasional; Caripito, rare.

Four specimens taken at Kartabo as follows: November 22, December 18, January 5 and one specimen with no date. Two specimens were taken at Caripito, one on May 7 and the other on June 15. Ranges from Florida to Argentina.

***Pachylia resumens* Walker.**

Kartabo, occasional; Caripito, not collected.

Three specimens were taken at Kartabo and the only one with a date label captured on July 5. Florida to Argentina.

***Pachylia syces syces* (Hübner).**

Kartabo, not collected; Caripito, unique.

One specimen collected on May 25 at Caripito. Ranges from Mexico to Argentina. Other races are found in the West Indies and Cuba.

***Leucorhampha ornatus* (Rothschild).**

Kartabo, unique; Caripito, not collected.

One specimen collected on May 13 at Kartabo. Found from Colombia to south Brazil.

***Leucorhampha triptolemus* (Cramer).**

Kartabo, occasional; Caripito, unique.

Five specimens captured at Kartabo, three on July 16 and two on August 31. One specimen taken at Caripito on May 25. Found from Mexico to Brazil.

***Hemeroplanes parce* (Fabricius).**

Kartabo, occasional; Caripito, not collected.

Three specimens taken at Kartabo as follows: May 17, May 28 and August 2. Distributed from Florida to Argentina.

***Aleuron carinata* (Walker).**

Kartabo, rare; Caripito, not collected.

Two specimens captured at Kartabo, one on March 17 and the other on April 2. Dis-

tributed from Honduras to South Brazil. This species was not reported from Pará by Moss.

Aleuron chloroptera (Perty).

Kartabo, unique; Caripito, not collected.

One specimen taken in 1924 at Kartabo. Distributed from Nicaragua to Argentina.

Aleuron neglectum Rothschild & Jordan.

Kartabo, occasional; Caripito, not collected.

Five specimens taken at Kartabo, two on June 19 and three on September 23. Distributed from Mexico to south Brazil.

Enyo japix japix (Cramer).

Kartabo, rare; Caripito, not collected.

Two specimens taken, one on June 22 and the other on July 16. The range of the subspecies is from Mexico to the Amazon region.

Epistor gorgon (Cramer).

Kartabo, unique; Caripito, rare.

One specimen taken on May 15 at Kartabo and two specimens at Caripito, one on May 11 and the other on May 12. Distributed from Mexico to Argentina.

Epistor lugubris lugubris (Linnaeus).

Kartabo, occasional; Caripito, rare.

Seven specimens taken at Kartabo as follows: May 2, May 15, July 16 (3) and two without a date. Two specimens were taken at Caripito, one on April 27 and the other on May 26. Found from Argentina, throughout the tropics, and occasionally as far north as Massachusetts.

Epistor ocypete (Linnaeus).

Kartabo, rare; Caripito, unique.

Two specimens taken at Kartabo, one on May 10 and the other without a date. One specimen taken at Caripito on May 25. Distributed from Mexico to Argentina.

Pachygonia caliginosa (Boisduval).

Kartabo, rare; Caripito, not collected.

Two specimens taken at Kartabo, one without a date and the other captured July 7. Distributed throughout Central and South America. Not taken by Moss at Pará.

Perigonia lusca restituta (Walker).

Kartabo, rare; Caripito, not collected.

Two specimens taken at Kartabo, one on June 24 and the other without a date. Distributed from Mexico to the Amazons.

Sesia ceculus (Cramer).

Kartabo, common; Caripito, not collected.

Ten specimens taken at Kartabo as follows: January 14, January 16, July 5, July 16, July 19, August 5, August 15, October 22 and October 23 (2). Distributed from Mexico to south Brazil.

Sesia fadus (Cramer).

Kartabo, unique; Caripito, not collected.

One specimen without a date taken at Kartabo. Widely distributed throughout the neotropics and occasionally found in the nearctic region.

PHILAMPELINAE.

Pholus anchemolus (Cramer).

Kartabo, rare; Caripito, occasional.

Two specimens taken at Kartabo on May 25 and three at Caripito as follows: May 17, May 19 and June 1. Distributed from Mexico to Argentina.

Pholus capronnieri (Boisduval).

Kartabo, unique; Caripito, occasional.

One specimen taken at Kartabo without a date and three at Caripito as follows: May 19, May 22 and June 13. Reported in the literature from Ecuador, Peru, Venezuela, Surinam and the Amazon region.

Pholus eacus (Cramer).

Kartabo, unique; Caripito, not collected.

One specimen taken at Kartabo on August 9. Widely distributed in South America.

Pholus labruscae (Linnaeus).

Kartabo, common; Caripito, unique.

Sixteen specimens taken at Kartabo as follows: May 15, May 20 (3), May 25 (10), June 4 and September 29. One specimen taken at Caripito on June 3. Distributed everywhere in the American tropics and a straggler to Patagonia and Canada.

Pholus phorbis (Cramer).

Kartabo, unique; Caripito, unique.

One specimen taken on July 24 at Kartabo and one at Caripito on May 19. Distributed from Venezuela to Pará.

Pholus satellitia licaon (Cramer).

Kartabo, unique; Caripito, abundant.

One specimen taken at Kartabo in 1920 and 47 specimens taken at Caripito as follows: May 11 (2), May 12 (7), May 13 (8), May 14, May 16 (4), May 17 (4), May 19 (9), May 21 (2), May 22 (4), May 23, May 25 (2), May 26 (2) and June 10. Distributed from Mexico to north Brazil and Bolivia.

Pholus vitis vitis (Linnaeus).

Kartabo, occasional; Caripito, occasional.

Four specimens taken at Kartabo as follows: May 15, May 18, June 1 and one without a date. Five specimens taken at Caripito as follows: May 12, May 13 (2), May 16 and May 19. Widely distributed in the neotropics north to New England.

CHOEROCAMPINAE.

Xylophanes anubus (Cramer).

Kartabo, not collected; Caripito, unique.

One specimen collected at Caripito on June 19. Found from Mexico to Argentina.

Xylophanes ceratomioides (Grote & Robinson).

Kartabo, rare; Caripito, not collected.

Two specimens taken at Kartabo. Distributed from Mexico to south Brazil. This species was not taken by Moss at Pará.

Xylophanes chiron nechus (Cramer).

Kartabo, occasional; Caripito, occasional.

Three species taken at Kartabo as follows: March 2, April 30 and one with no date. Five species taken at Caripito as follows: May 19 (2), June 13, July 2 and July 14. Distributed from Mexico to Argentina.

Xylophanes elara (Druce).

Kartabo, unique; Caripito, not collected.

One specimen taken on July 21 at Kartabo. Distributed from Venezuela to Paraguay.

Xylophanes guianensis (Rothschild).

Kartabo, unique; Caripito, not collected.

One specimen taken at Kartabo on July 30. Reported from British Guiana and Ecuador.

Xylophanes mossi Clark.

Kartabo, unique; Caripito, not collected.

One specimen taken at Kartabo on May 7. The type came from Pará.

Xylophanes neoptolemus (Cramer).

Kartabo, occasional; Caripito, unique.

Six specimens taken at Kartabo with one specimen dated July 21. This species was taken by P. Anduze (*Boletín de la Sociedad Venezolana de Ciencias Naturales*, Tomo IV, No. 32, p. 305, Caracas, 1938) at Cari-

pito in July. Distributed from Mexico to Surinam. Not taken by Moss at Pará.

Xylophanes pistacina (Boisduval).

Kartabo, not collected; Caripito, rare.

Two specimens taken at Caripito, one on May 13 and the other on May 19. Distributed from Mexico to south Brazil. Not taken by Moss at Pará.

Xylophanes tersa (Linnaeus).

Kartabo, rare; Caripito, rare.

Two specimens taken at Kartabo that have no date labels and two at Caripito, the first taken on June 15 and the second on July 10. This insect is distributed from Canada to Argentina.

Xylophanes thyelia thyelia (Linnaeus).

Kartabo, not collected; Caripito, unique.

One specimen taken at Caripito on May 22. Distributed from Ecuador to south Brazil.

Xylophanes turbata (Edwards).

Kartabo, not collected; Caripito, rare.

Two specimens captured at Caripito, one on May 14 and the other on May 16. Reported in the literature as ranging from Mexico to Central America. This species was not taken by Moss at Pará.

Xylophanes tyndarus (Boisduval).

Kartabo, not collected; Caripito, rare.

Two specimens taken at Caripito, the first on May 16 and the second on June 13. Distributed from Mexico to Argentina. Not taken at Pará by Moss.

Celerio lineata (Fabricius).

Kartabo, not collected; Caripito, unique.

One specimen taken at Caripito on June 13. Distributed from Canada to Argentina. This species was not taken at Pará by Moss.